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Children's Perception towards Non-Pharmacologic Behavior Management Techniques - An Evaluative Study

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Abstract: ***Objective: Pediatric dentistry understands that the behavior guidance of the child cannot be separated from the quality of dental work. A child's willingness in accepting dental treatment is as important as the parents', if not more. This study aimed to evaluate the children's attitude towards different non-pharmacologic behavior guidance techniques adopted by the American Academy of Pediatric Dentistry using the line of favor. Methods: A total of 100, 6-12 years old children were selected; 50 from private schools and 50 from public schools. Each child was asked to watch 7 videos of non-pharmacologic behavior guidance techniques which include: tell-show-do, positive reinforcement, distraction, non-verbal communication, parental presence/absence, protective stabilization and voice control. After watching the videos, children were asked to express their feeling towards each technique by drawing a line of favor. Results: In both the private and public schools, the gender didn't affect the acceptability of behavior guidance techniques among children. For the two study groups, positive reinforcement was the most accepted technique with statistically significant difference in favor of private schools, while voice control was the least accepted technique with statistically significant difference in favor of public schools. Conclusion: Children's opinion should always be considered as they are the one receiving the treatment. Positive reinforcement was the most accepted technique, while protective stabilization and voice control were the least accepted.***

Keywords: Child Behaviour, Dental Anxiety

1. Introduction

Pediatric dentistry for decades is considered as the specialty responsible for management associated with the dental care of children in dental settings and the word Behaviour management is synonymous with it [1]. Many children still find visiting the dentist very stressful [2]. This escapism from dentist is very common in children and is attributed to the anxiety and fear that children go through before the dental treatment, thus leading to an uncooperative behaviour [3] [4]. Such children tend to avoid dental care and they show worse oral health condition [5]. Appropriate behaviour management technique should be used to ensure the acceptance of dental care [6]. The American Academy of Pediatric Dentistry (AAPD) outlined basic behavior guidance techniques (tell-show-do (TSD), voice control, positive reinforcement, distraction, non-verbal communication, parental presence/absence) and advanced behavior guidance techniques (protective stabilization, nitrous oxide/oxygen inhalation and general anesthesia) [7]. Kuhn and Allen added three other techniques: contingent distraction, modeling and contingent escape [8]. All these techniques aim at decreasing children's resistance to the treatment, level of dental anxiety and disruptive behavior [9,10]. In the recent past, focus has been on the parental attitude towards the behavior modification techniques employed in pediatric dentistry; but Very few studies have been found discussing children's views of different behavior guidance techniques. Children have their own preferences regarding the appearance of their dentist and dental clinics, this enhance a positive dental attitude in the child's mind and decrease his anxiety. A modification of Visual analogue scale (VAS); namely Line of favourism (LOF) 'as developed by Kantaputra et al was used to measure children's attitude towards behavior management techniques [11]. It comprises of a 10 cm long horizontal rectangle with an anchor point placed just on the left margin. The length of the line drawn by the child reflected how much he likes the technique. The aim of this study was to evaluate the children's attitude towards different non pharmacologic behavior guidance techniques adopted by the AAPD using the LOF.

2. Materials and Methods

This study was designed as cross sectional study. The study sample included 100 children of 6-12 years old, randomly selected from both private schools (indicating a high socioeconomic status) and public schools (indicating a low socioeconomic status) with no previous dental experience. The sample size was calculated using IBM SPSS Sample Power Program version 3.0.1. Children included into the study were able to watch videotapes and communicate effectively. The sample was equally divided into 2 groups: Group A represented children from private schools, and group B represented children from public schools. Parents of selected children were explained about the aim of the study and their consents for approval were received. Videotapes were filmed using following behavior guidance techniques: TSD, positive reinforcement, distraction, nonverbal communication (reassuring touch), parental presence/ absence, protective stabilization and voice control. Performance of demonstration videos was carried out by the same dentist with the participation of a volunteer child who had been asked to behave as instructed. The validity of the videos of behaviour guidance techniques was established by two pediatric dentists who viewed and evaluated them.

3. Measurement of Attitudes

Children who participated in the study were addressed separately in a private room where they were told that they will evaluate the behavior guidance technique used in the videos. The filmed videos were then shown, one video at a time. After watching each video, the technique used in it was explained to the child. Then they were asked to draw a line from the anchor point to the right. The length of the line of favor reflected how much they liked the behavior guidance technique shown. The maximum length of line of favor is 10 centimeters representing highest acceptance of a technique. While a short line reflected an unfavorable technique by the child. The line of favor scale was designed to interpret the 'liking' of a child and translate it into a numerical value.

A score of:
•0 to ≤ 3 cm means the child is not very fond of that technique.
•>3 to ≤ 7 cm means the child is neutral toward that technique.
•>7 to ≤ 10 cm means the child likes that technique very much.

4. Statistical Methodology

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. Qualitative data were described using frequency and percentage. Comparison between different groups regarding categorical variables was tested using Chi-square test. When more than 25% of the cells have expected count less than 5, Yate's correction was used for 2×2 tables (n>40), Monte Carlo correction was used for >2×2 tables. Significance of the obtained results was judged at the 5% level. Results Out of the total study sample, 50% were males and 50% were females. There was no statistically significant difference between the two study groups regarding gender (p≥0.05). Mean age for group A was 9.28±2.06 years while that for group B was 9.72±1.96 years. There was no statistically significant difference between both groups regarding age (p≥0.05).

For group A, the most accepted behavior guidance techniques among males were in order of positive reinforcement (92.6%), TSD and distraction (77.8%), non-verbal communication (74.1%), Parental presence/absence (66.7%), protective stabilization (14.8%) and the least accepted was the voice control (7.4%). While among the females, the most accepted techniques were in order of positive reinforcement (100%), TSD and distraction (82.6%), Parental presence/ absence (52.2%), non-verbal communication (43, 5%), protective stabilization (17.4%) and again the least accepted was the voice control (8.7%). In case of group B, the order of the most accepted behavior guidance techniques among both sexes were almost the same: positive reinforcement (87.0% for males, 92.6% for females), non-verbal communication (82.6% for males, 88.9% for females), TSD (73.9% for males, 88.9% for females), distraction (60.9%for males, 77.8% for females), Parental presence/ absence and protective stabilization (52.2% for males, 66.7% for females), and the least accepted was the voice control (39.1%for males, 50% for females). We further compared the difference between the two study groups for different behavior guidance techniques. There was a statistically significant difference between the two groups regarding the positive reinforcement and distraction with higher acceptance by children from private schools (P=0.042, P=0.006 respectively). In addition, non- verbal communication, voice control and protective stabilization were more accepted by public schools children with statistically significant difference (P=0.000). As regard to the TSD and parental presence/absence techniques, no statistically significant difference has been found between the two study groups (P=0.254, P=0.644 respectively) (Table 1).

Table 1: Comparison between children from private and public schools regarding their acceptability of behavioural guidance techniques

Line of Favor	Group A (Private schools children) (n = 50)	Group B (Public schools children) (n = 50)	P value
Positive reinforcement			
0-3 (not very fond of that technique)	2	2	
>3-7 (neutral forward that technique)	0	3	
>7-10 (like that technique very much	48	45	p=0.042*
Distraction			
0-3 (not very fond of that technique)	2	9	
>3-7 (neutral forward that technique)	8	6	
>7-10 (like that technique very much	40	35	p=0.006*
Non-verbal communication			
0-3 (not very fond of that technique)	2	1	
>3-7 (neutral forward that technique)	18	6	
>7-10 (like that technique very much	30	43	p=0.000*
Voice control			
0-3 (not very fond of that technique)	28	24	
>3-7 (neutral forward that technique)	18	3	
>7-10 (like that technique very much	4	23	p=0.000*
Protective stabilization			
0-3 (not very fond of that technique)	26	11	
>3-7 (neutral forward that technique)	16	9	
>7-10 (like that technique very much	8	30	p=0.000*
Tell-Show-Do			

0-3 (not very fond of that technique)	2	4	
>3-7 (neutral forward that technique)	8	5	
>7-10 (like that technique very much	40	41	p=0.254
Parental presence/absence			
0-3 (not very fond of that technique)	6	8	
>3-7 (neutral forward that technique)	14	12	
>7-10 (like that technique very much	30	30	p=0.644 NS

5. Discussion

In both study groups, the gender did not affect the selection order of the preferred behavior guidance technique. In case of the public schools, it has been found that both male and female children showed almost the same sequence in accepting the different management techniques. For the private schools, both sexes were highly accepting the positive reinforcement and TSD, and least accepting the voice control. But it has been noticed that female children preferred the parental presence more than the non-verbal communication while for the males the non-verbal communication was more preferred. This was probably due to higher anxiety among females and the male children that did not prefer the parental presence, may feel embarrassed to be showing their fears in front of their mothers and may pretend to be stronger to get the treatment done in their absence. The present study revealed a statistically significant difference among acceptability ratings of different behavior guidance techniques between the two study groups. Although positive reinforcement was the most favorable among children from both schools, it was more significantly accepted by private schools children. Distraction was more significantly accepted by children from the private schools. Non-verbal communication, although comprises lots of factors, Results revealed that this technique was greatly accepted by children who explained that reassuring touch made them see the dentist as a kind and lovable person. It is also worth to mention that non-verbal communication was significantly more accepted by children from public schools reflecting their stronger need for care and affection. Additionally, results showed that voice control and protective stabilization were significantly less accepted by children from private schools compared to the public ones. Such difference could be due to the lifestyle and upbringing of private schools children which make them more aware of their rights and thus rejecting such aversive techniques. Regarding TSD and parental presence/absence techniques no statistically significant difference has been found between the two study groups. A number of children did not prefer TSD as they explained that it may lead them to be anxious.

6. Conclusion

Children's preference and opinion regarding behaviour management technique should always be considered. Positive reinforcement was the most accepted technique by all children, while protective stabilization and voice control were the least accepted.

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